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VOL. 22 No. 43 October 27, 1972

Cooperative Economic Insect Report

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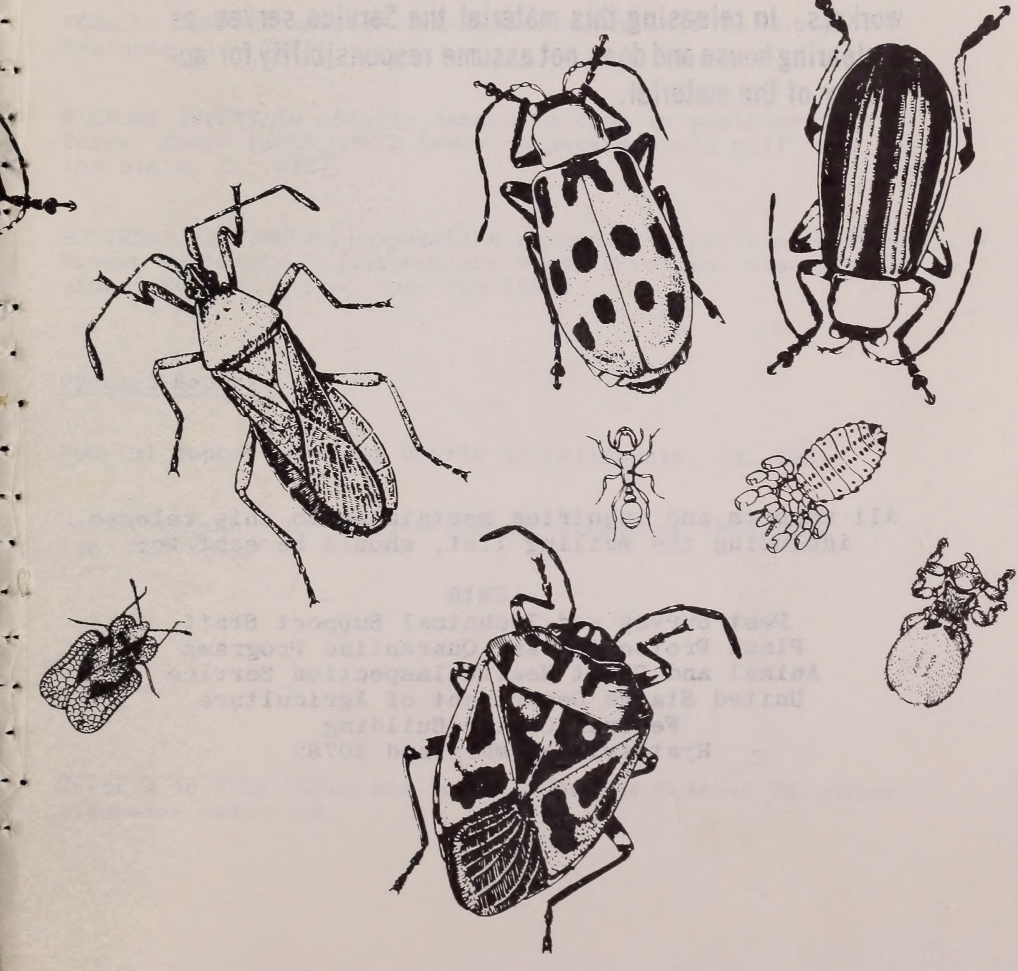

ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS
PEST SURVEY AND TECHNICAL SUPPORT STAFF

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 22 October 27, 1972 Number 43

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG active in winter wheat in scattered areas of Nebraska; economic in few fields with controls applied. (p. 721).

FALL ARMYWORM damaged small grains in some areas of Rolling Plains in Texas. Heavy on oats, wheat, and ryegrass combination pastures in scattered areas of Mississippi. (p. 722).

TOBACCO BUDWORM caused first known heavy loss to cotton in Arkansas. (p. 723).

HICKORY SHUCKWORM heavily damaged pecans in south-central Texas. BLACK PECAN APHID heavy on pecans along gulf coast of the State. (p. 724).

SOUTHERN PINE BEETLE population expanding rapidly over Tusquittee Ranger District in southwestern North Carolina; also problem in other areas of State. (pp. 724-725).

Special Reports

Special Report on a Sap Beetle in California. (p. 728).

Mediterranean Fruit Fly. Selected References 1960-1966. (pp. 729-734).

Reports in this issue are for week ending October 20 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING OCTOBER 23

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Scattered showers occurred over the northern and central Atlantic Coastal States and Tennessee River Valley early in week in advance of a cool front which was moving southeastward over the area. Snow flurries were seen along the lee shores of the Great Lakes. Cold air blowing across relatively warm waters picked up moisture, dropped it when breezes reached the lee shores. Buffalo, New York, received 2 inches of snow Wednesday. Two inches of snow fell at Moline, Illinois, Wednesday also. Light rain also fell in the West while snow fell in some western mountains. Freezing drizzle slicked roads at Akron, Colorado, Wednesday afternoon. Heavy showers fell in some desert localities--1.83 inches at Phoenix, Arizona, and about 3.25 inches at Payson some 70 miles northeast of Phoenix. Many localities from the Atlantic to the Pacific and from the Great Lakes to the Gulf of Mexico received light showers Wednesday forenoon. Heavy rains fell over the central Great Plains late Saturday and early Sunday. One of the heaviest showers drenched McAlester, Oklahoma, with 6.25 inches. Lighter rains also fell elsewhere over the eastern half of the Nation over the weekend. No rain fell during the week in southern Georgia and much of the Florida Peninsula. Only widely scattered light sprinkles occurred from northern Washington to the Red River of the North.

TEMPERATURE: A mass of cold artic air blustered into the North Central States from Canada early in the week. Southwesterly winds preceded the front which marked the leading edge of cold air. They brought summer weather from the South. Numerous cities in advance of the front had never seen such warm weather so late in the season. Some examples were: Wichita Falls, Texas, 102 degrees Tuesday; Oklahoma City, Oklahoma, 96 degrees Tuesday; Jacksonville, Florida, 89 degrees Wednesday. Northwesterly winds followed the front. Weather of the week continued on page 726.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - TENNESSEE - Continued to damage newly seeded sod in central area. To date most damage light and isolated. (Gordon).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Ranged 2-6 per linear foot in wheat in Texas County. Very light in Cimarron County. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Ranged 0-5 per linear foot on wheat in Curry and Roosevelt Counties. (N.M. Coop. Rpt.). OKLAHOMA - Destroyed about half of 35-acre small grain field in Cimarron County. Ranged 7-21 per linear foot in 5 fields in Texas and Cimarron Counties. Light in Roger Mills and Tillman Counties. (Okla. Coop. Sur.). KANSAS - Averaged 5 per drill row foot in field of early wheat in Bourbon County, 4 per row foot in field in Cherokee County. Trace infestations found in Linn, Greenwood, Chautauqua, Sumner, and Harper Counties. (Bell). NEBRASKA - Active in winter wheat in scattered areas. Economic in few fields, controls applied. Counts indicate most fields should be watched. Counts 2,000+ per row foot near one end of 160-acre field in Box Butte County; about 3 percent of stand killed. Damage severe in 20-acre field in Polk County, with 50 percent of stand killed. Up to 500 S. graminum and 100 Rhopalosiphum fitchii (apple grain aphid) per row foot in this field. S. graminum ranged trace to 10 and R. fitchii up to 25 per row foot in Hamilton, Fillmore, and Clay Counties; no damage visible in these counties. Parasitism by Lysiphlebus testaceipes (a braconid wasp) less than 5 percent in most fields. Only occasional Hippodamia convergens (convergent lady beetle) observed. (Peters). S. graminum noted in 6 of 21 winter wheat fields surveyed in Lincoln, Keith, and Perkins Counties. Numbers generally light; heaviest count, 30 per row foot. (Campbell). Infestations spotted in Otoe County. (Peterson, Roselle).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Ranged 4-10 per sweep in older alfalfa seed fields in Dixie Valley, Pershing County. (Stitt, Oct. 13). ARIZONA - Counts of 4,000 per 100 sweeps taken in one alfalfa field at Gila Valley, Yuma County. (Ariz. Coop. Sur.). KANSAS - Averaged 35 per 10 sweeps in field of 12-inch alfalfa in Bourbon County, 5 per 10 sweeps in field of 4-inch alfalfa in Crawford County. (Bell). ARKANSAS - Light, ranged 100-150 per 100 sweeps, in Washington County alfalfa. Survey negative in these fields past several weeks. (Boyer).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ILLINOIS - Found in 70 percent of fields surveyed in Alexander and Pulaski Counties; averaged 16.8 larvae per 100 plants. (Ill. Ins. Rpt.). OKLAHOMA - Infestation ranged 1-25 percent in 9 cornfields in Texas County, 2-10 percent in 4 fields in Cimarron County, and 1 percent in Beaver County field. Larvae ranged 50-100 percent immaculate in Texas County. (Okla. Coop. Sur.).

SORGHUM WEBWORM (Celama sorghiella) - KANSAS - Heavy in late sorghum field in Linn County; larvae, all stages, averaged 19 per head. Light, up to one larva per head, in late sorghum in Crawford, Cherokee, Labette, and Montgomery Counties. (Bell).

FALL ARMYWORM (Spodoptera frugiperda) - KANSAS - Second and third instars infested about 5 percent of whorls of 12-inch volunteer corn in Cherokee County; trace seen in whorls of 15-inch second-growth forage sorghum in Bourbon County. (Bell).

CORN ROOTWORMS (Diabrotica spp.) - IOWA - Statewide survey indicated lodging decreased from 4.97 percent in 1971 to 1.58 percent in 1972. (Iowa Ins. Sur.).

SORGHUM MIDGE (Contarinia sorghicola) - KANSAS - Heavy damage to seed heads of late sorghum in Linn, Crawford, Labette, and Montgomery Counties. (Bell).

SMALL GRAINS

FALL ARMYWORM (Spodoptera frugiperda) - TEXAS - Moderate to heavy infestations damaged small grains in some areas of Haskell, Young, Fisher, and Foard Counties of Rolling Plains. Heaviest damage to small grains planted for grazing. Light in Archer County. (Boring). OKLAHOMA - Light on small grain in Pawnee and Roger Mills Counties, light to moderate in Pontotoc, Tillman, and McCurtain Counties. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Caused 15-20 percent loss of stand in small grain fields in Carter County; larvae ranged 3-4 per linear row foot in spotted areas. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

SAGEBRUSH DEFOLIATOR (Aroga websteri) - UTAH - Infestation and damage ranged from very light to severe in northern and central range areas. Moderate in Cache, Davis, and Weber Counties, some infestations severe in northern Box Elder County. (Knowlton).

FALL ARMYWORM (Spodoptera frugiperda) - MISSISSIPPI - Heavy on oats, wheat, and ryegrass combination pastures in Amite, Clay, and Madison Counties. Controls applied. (Robinson).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Caused loss of stand to wheat and rye pastures in Wilbarger and Wichita Counties. (Boring).

FORAGE LEGUMES

ALFALFA CATERPILLAR (Colias eurytheme) - NEVADA - Young larvae averaged 1 per plant in seedling alfalfa in Dixie Valley, Pershing County. (Stitt, Oct. 13). ARIZONA - Controls applied to alfalfa at Safford, Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Larvae light, 5-10 per 25 sweeps, on alfalfa at Hobbs and Lovington, Lea County. (N.M. Coop. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - KANSAS - Larvae, all stages, averaged 22 per 10 sweeps in 14-inch alfalfa in Riley County. This pest, along with Colias eurytheme (alfalfa caterpillar), Caenurgina erechtea (forage looper), and Heliothis zea (corn earworm) caused about 15 percent defoliation. (Bell). OKLAHOMA - Heavy on alfalfa in Washita, Beckham, Caddo, and Custer Counties. (Okla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - WISCONSIN - Larvae ranged 3-7 per 25 sweeps in some northern Dane County fields and one Sauk County field. No adults seen. (Wis. Ins. Sur.). MISSOURI - Adults ranged 3-31 per 10 sweeps in central area alfalfa. Light populations of small larvae seen in most fields checked. (Munson). NEW MEXICO - Light in alfalfa at Belen and Los Lunas, Valencia County. (N.M. Coop. Rpt.).

PEA APHID (Acyrthosiphon pisum) - WISCONSIN - Populations stable, averaged 12 per sweep in southwestern and southern counties. Reproduction slowed as have predator and parasite activity. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - KENTUCKY - Averaged 20 per 100 sweeps on alfalfa checked in Meade County. (Barnett).

PEANUTS

REDNECKED PEANUTWORM (Stegasta bosqueella) - NEW MEXICO - Infested 80 percent of peanut terminals at Portales, Roosevelt County. (N.M. Coop. Rpt.).

COTTON

TOBACCO BUDWORM (Heliothis virescens) - ARKANSAS - About 400 acres of cotton plowed under in Chicot County. This is first known case of such heavy loss to this pest in State. Up to 40,000 larvae per acre seen in some fields. Insecticide treatments gave little control. (Boyer).

COTTON LEAFPERFORATOR (Bucculatrix thurberiella) - TEXAS - Caused light damage to cotton in Dickens, Kent, and Wichita Counties. (Jordan et al.). OKLAHOMA - Heavy in Caddo and Bryan Counties. (Okla. Coop. Sur.).

TOBACCO

TOBACCO MOTH (Ephestia elutella) - NORTH CAROLINA - Larval population increased in some curing barns and pack houses in Harnett, Wilson, and Wayne Counties. (Hunt).

MISCELLANEOUS FIELD CROPS

PYRALID MOTHS (Pyrausta spp.) - OREGON - Preliminary survey of mint plantings in Pineville area, Crook County, revealed no larvae or damage. Further surveys in mint-producing areas in central part of State anticipated. (Penrose). See CEIR 22(41):695 for first report of these new pests of mint in Oregon. (PP).

COLE CROPS

CABBAGE LOOPER (Trichoplusia ni) - OREGON - First significant larval counts noted in 0.5-acre test plot of broccoli, cauliflower, and cabbage near Cornelius, Washington County. Averaged one larva per 3 cabbage plants. (Collins, Oct. 13). ARIZONA - Controls applied to lettuce at Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - OREGON - Alates and non-winged forms heavy on 0.5-acre test plot of broccoli, cabbage, and cauliflower near Cornelius, Washington County. On broccoli, aphids ranged 50-100 per terminal (plants have gone to seed); on cabbage and cauliflower, 10-15 colonies per plant with 10-20 aphids per colony. (Collins, Oct. 13).

DECIDUOUS FRUITS AND NUTS

PEACHTREE BORER (Sanninoidea exitiosa) - OKLAHOMA - Moderate on peach and plum trees in Oklahoma County. (Okla. Coop. Sur.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - Males still active; totals of 160 and 205 taken in pheromone traps at 2 locations near Sawyer, Yakima County, week ending October 5. (Eves).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEVADA - Heavy on apple nursery stock in Las Vegas, Clark County. (Hoff et al.).

SAN JOSE SCALE (Quadraspidiotus perniciosus) - OREGON - Very heavy buildup apparent in cherry orchards in Wasco County; cause not determined. (Thienes, Oct. 13).

HICKORY SHUCKWORM (Laspeyresia caryana) - TEXAS - Heavily damaged pecans in several south-central area counties. Heaviest in Guadalupe, Gonzales and De Witt Counties. (Cole). MISSISSIPPI - Up to 5 larvae per fallen nut found under several yard pecan trees in Oktibbeha County. (Robinson).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Pecan trees heavily damaged or completely defoliated in Dona Ana County. (N.M. Coop. Rpt.). TEXAS - Decreased on pecans in Goliad County. (Cole).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Increased on pecans in De Witt County, some trees stripped for third time this season. (Cole).

BLACK PECAN APHID (Tinocallis caryaefoliae) - TEXAS - Heavy in areas along gulf coast and in Caldwell County of south-central area. Some leaf damage and defoliation occurred. (Green).

SMALL FRUITS

RASPBERRY CROWN BORER (Bembecia marginata) - OREGON - Random sample of 18-acre field of red raspberry near Banks, Washington County, showed about 50 percent of plants infested with 1+ larvae. (Collins, Oct. 13).

WESTERN GRAPELEAF SKELETONIZER (Harrisina brillians) - NEVADA - Larvae heavy on graps and Virginia creeper in Las Vegas area, Clark County. (Bechtel).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Increased over Tusquittee Ranger District in Cherokee and Clay Counties. Population expanding rapidly. Survey revealed 60+ new spot infestations. Also problem in Randolph, Surry, Davie, Davidson, and Stanly Counties. (Hunt). ALABAMA - Established infestation killed 100+ Virginia pines along main highway near top of Cheaha Mountain State Park in Cleburne County. Recently emerged adults seen. (McQueen).

WHITE PINE APHID (Cinara strobi) - SOUTH CAROLINA - Populations increased in white pine plantations in Piedmont area. (Fox).

VARIABLE OAKLEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Heavy populations defoliated trees in Pontotoc and McCurtain Counties. (Okla. Coop. Sur.).

OBSCURE SCALE (Melanaspis obscura) - KANSAS - Heavy on bur oaks near Wichita, Sedgwick County. Overwintering nymphs averaged 400+ per square inch, many twigs and branches dead. (Bell).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 3,725 confirmed cases reported in continental U.S. during period October 8-14 as follows: Texas 3,501; New Mexico 53; Arizona 101; California 1; Oklahoma 66; Kansas 3. There have been no further cases found in the Southeastern States since initial finds of one case each in Alabama, Florida, and Georgia reported in CEIR 22(41):697. Total of 554 cases reported from Mexico. Number of sterile flies released in U.S. October 8-14 totaled 148,314,000 as follows: Texas 122,424,000; New Mexico 5,922,000; Arizona 13,718,000; California 850,000; Florida 4,200,000; Alabama 200,000; Georgia 1,000,000. Total of 24,550,000 sterile flies released in Mexico. (Anim. Health).

HORN FLY (Haematobia irritans) - OKLAHOMA - Heavy on cattle in Choctaw, Pawnee, and Comanche Counties. Moderate in Pontotoc, McCurtain, Garfield, and Payne Counties. (Okla. Coop. Sur.).

BENEFICIAL INSECTS

AN ENCYRTID WASP (Ooencyrtus kuwanai) - OHIO - Total of 10,000 specimens of this egg parasite of Porthetria dispar (gypsy moth) released in immediate area of Auglaize County where male moth previously trapped. (PP).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - TEXAS - Heavily damaged oats and other small grains planted for grazing in Archer County. (Boring). NEW MEXICO - Heavy on rangeland at Vaughn, Guadalupe County. (N.M. Coop. Rpt.). OREGON - Fall adult surveys show total of 2,284,960 acres of rangeland infested in 9 eastern counties. (Penrose).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Trapped in Freemont Township, Isabella County, September 12; Big Rapids Township, Mecosta County, September 22; and in Bay City State Park, Bay County, September 22. These are first times collected in these counties. Also, first collections since declared eradicated in Calhoun County in 1969. Specimens from Isabella and Bay Counties determined by E.L. Todd. Specimen from Mecosta County determined by D.C. Ferguson. (PP). OHIO - See "AN ENCYRTID WASP" under BENEFICIAL INSECTS above.

PINK BOLLWORM (*Pectinophora gossypiella*) - ARIZONA - Active in late top crop cotton at Maricopa, Pinal, Graham, and Yuma Counties. (Ariz. Coop. Sur.). NEW MEXICO - Green cotton boll checks ranged 4-44 percent infested around Las Cruces, Dona Ana County. Most larvae very young. (N.M. Coop. Rpt.). OKLAHOMA - Infested green cotton bolls in Bryan and Kiowa Counties. (Okla. Coop. Sur.).

RANGE CATERPILLAR (*Hemileuca oliviae*) - NEW MEXICO - Adult found on range grass at Clayton, Union County. No egg masses found. (N.M. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 10/13-19, BL - Armyworm (*Pseudaletia unipuncta*) 7, beet armyworm (*Spodoptera exigua*) 66, black cutworm (*Agrotis ipsilon*) 3, corn earworm (*Heliothis zea*) 8, fall armyworm (*Spodoptera frugiperda*) 11, granulate cutworm (*Feltia subterranea*) 3, tobacco budworm (*Heliothis virescens*) 2.

MISSISSIPPI - Stoneville, 10/13-19, 2 BL, 60-90 degrees F., precipitation 0.12 - Armyworm 100, beet armyworm 1,532, black cutworm 38, cabbage looper (*Trichoplusia ni*) 2, corn earworm 135, fall armyworm 129, granulate cutworm 133, saltmarsh caterpillar (*Estigmene acrea*) 1, tobacco budworm 21.

NEW HAMPSHIRE - Lee, 10/15, BL - Armyworm 1.

PENNSYLVANIA - (District) - Central, 10/5-16, BL - Armyworm 6, black cutworm 3, variegated cutworm (*Peridroma saucia*) 2. Southeast, 10/5-16, BL - Armyworm 2, black cutworm 6, variegated cutworm 1, yellowstriped armyworm (*Spodoptera ornithogalli*) 4. Southwest, 10/5-16, BL - Armyworm 15, black cutworm 18, corn earworm 5, variegated cutworm 7, yellowstriped armyworm 4.

TEXAS - Waco, 10/16-20, BL - Armyworm 63, beet armyworm 36, black cutworm 10, cabbage looper 40, fall armyworm 41, granulate cutworm 63, variegated cutworm 71, yellowstriped armyworm 24.

WISCONSIN - Lancaster, 10/16-20, BL - Armyworm 3.

Weather of the week continued from page 720.

They sharpened the bite in the cold air. Williston, North Dakota, registered 5 degrees above zero Wednesday morning. By late Thursday, the front had marched off the Atlantic and gulf coasts. A large High covered the eastern half of the Nation. Only the Florida Peninsula lay in warm air. Sub-freezing weather reached Tennessee and North Carolina. Many eastern localities recorded lower temperatures than had occurred any previous October. A large area from the northern and central Great Plains to the northern and middle Atlantic coast averaged 9 degrees to 15 degrees colder than normal.

HAWAII INSECT REPORT

Turf and Pasture - GRASS WEBWORM (*Herpetogramma licarsisalis*) generally trace in 20 acres of pasture at Haiku, Maui; up to 8 (average less than 1) larvae per square foot in isolated pockets of Kikuyu grass. Pupae trace in pockets of light larval populations; larval parasitism may be a factor. Larvae collected and held for assessment. (Miyahira).

General Vegetables - ONION THRIPS (*Thrips tabaci*) nymphs and adults heavy in about one acre of bulb onions at Pulehu, Maui. Larval mines of LEAFMINER FLIES (*Liriomyza* spp.) ranged light to moderate on older leaves in 0.5 acre of snap beans and 3 acres of tomato at Pulehu, Maui; adults light and moderate respectively. Routine spray program followed in both plantings. (Miyahira).

Forest and Shade Trees - Chemical eradication efforts and extensive district surveys for a EURASIAN PINE APHID (*Pineus pini*) continued on Maui. Since inception of suppression project in July 1971, 22 residential infestations found after about 25 percent of island land-use districts surveyed. All infestations appear under control; no indication of spread from original introductions. *Curinus coerulus* (a lady beetle) observed avidly preying on nymphs and adults of *P. pini* at one residence. Light infestation of *P. pini* found on less than one percent of 3,000+ potted *Pinus* spp. at nursery at Waikoloa, Hawaii; first report of this pest from this locality. Biological control continued with release of 357 adults of *Leucopis nigraluna*, a chamaemyiid fly, larvae are predaceous on aphids, scale insects, and mealybugs. Releases made on Parker Ranch. Recovery attempts to confirm establishment of *L. nigraluna* negative to date. Extensive search for *P. pini* on Kauai continued negative. Latest surveys conducted in Hanalei and Kawaihau districts. (Miyahira et al.). A PSYLLID (*Psylla uncatoides*) trace at Makaha, Kumuwela, and Kalalau in Kokee, Kauai. However, the koa rust, *Uromyces koae* (a fungus) spores of which are supposedly distributed by *P. uncatoides*, conpicuous on terminals and juvenile lateral growths of native *Acacia koa* trees. Light numbers of nymphs and occasional adult observed in Wahiawa and Palolo Forest Reserves on Oahu. Nymphs averaged 10 per foot-long koa terminal at Wahiawa and 5 at Palolo. No evidence of koa rust in either locality. (Sugawa, Kashiwai).

Man and Animals - Mosquito collections during September from 58 light traps operated on Oahu totaled 94 *Aedes vexans nocturnus* and 2,741 *Culex pipiens quinquefasciatus*. *Aedes* catches ranged 0-42 at Kahaluu. *Culex* catches ranged 0-621 at Waipahu. (Mosq. Control Br., State Dept. of Health).

Beneficial Insects - Adults of a MARSH FLY (*Sepedon sauteri*) moderate in swampy areas at Kalaupapa, Molokai, during late September. Although 100 specimens of another marsh fly, *Sepedon* n. sp., released in July 1972 in this area, no releases of *S. sauteri* made on Molokai. Recovery of *Sepedon* n. sp. on Molokai negative to date. (Miyahira). Nymphs and adults of a TINGID BUG (*Leptobyrsa decora*) heavy on roadside lantana at Ulupalakua, Maui; about 80 percent of leaves showed feeding signs. During September, specimens collected and introduced to a lantana infested area at Puleku. Pronounced girdling of lantana branches by LANTANA CERAMBYCID (*Plagiohammus spinipennis*) noted about 0.5 mile from *L. decora* activity area. Initial *P. spinipennis* releases made at this site in April 1972. (Miyahira).

SPECIAL REPORT ON A SAP BEETLE IN CALIFORNIA

Conotelus mexicanus is currently a pest with an adverse environmental impact in California. This nitidulid beetle, which has been present in the desert areas south of the Tehachapi Mountains for many years, adapted to the San Joaquin Valley about 1968 when specimens were collected from cotton blooms in Kern County. It is now known to occur as far north as Fresno County.

In Kern County it has appeared during September and October, then disappeared. In 1972, for the first time, populations exploded. Flower growers complained that the adults damaged the light colored blooms by feeding on the petals. Investigation has shown much damage to chrysanthemums, carnations, zinnias, dahlias, and roses. Rose buds and open blooms contained up to 400-500 beetles per bloom. Dooryard roses also were damaged and when bouquets were taken into homes, flying beetles filled the room. Beetles occur in shaded areas but readily leave the host when exposed to sunlight.

State entomologists G. Okumura, A. Gilbert, and R. Hawthorne observed the damage status of this sap beetle which included cauliflower fields. Large numbers of beetles swarmed over and in the cauliflower curds. Feeding on immature curds was observed. Additional damage was observed on blooms of string beans, lima beans, squash, peppers, and tomatoes. One late patch of corn was 100 percent barren. Earlier corn in the immediate area was full kerneled. Silks on the late corn were cut off at the tip and beetles were present on the stubs. The early corn had full silks which had dried.

The limited cut flower industry in Kern County is threatened, and the potential pest status of this sap beetle on commercial crops, such as cauliflower and corn, can have a serious impact. Other hosts may be involved. Little is known of the life history of this species, especially the larval stage. The very large numbers that are occurring indicate very favorable breeding conditions. To date, chemical control has not been very effective. (J.H. Black).

MEDITERRANEAN FRUIT FLY
Ceratitis capitata (Wiedemann)

Selected References
1960-1966

Copies of this bibliography are available from Pest Survey and Technical Support Staff.

Akamine, E. K. and Shoji, K. 1960. Tolerance of tomatoes to methyl bromide fumigation. Hawaii Agr. Expt. Sta. Tech. Prog. Rpt. 124. 7 pp.

Arrieta Mateos, D. L., Terrazas Loyola, J., and Jimenez Jimenez, E. 1961. Mediterranean fruit fly (Ceratitis capitata Wied.) in Central America--actual situation in Nicaragua and possibilities of eradication. Fitofilo 14(32):29-38. In Sp.

Baas, J. 1960. Die Mittelmeerfruchtfliege in Hessen-Nassau in Jahre 1959. Gesunde Pflanzen 12(5):106-108, 110.

Baas, J. 1960. Die Mittelmeerfruchtfliege in Zitronen. Gesunde Pflanzen 12(4):72-74.

Berg, G. H. 1960. Occurrence of Mediterranean fruit fly. FAO Plant Protect. Bul. 8(5):58-59.
In the most important coffee producing area of Nicaragua.

Beroza, M. and Coauthors. 1961. New attractants for the Mediterranean fruit fly. J. Agr. and Food Chem. 9(5):361-365.

Bess, H. A., van den Bosch, R., and Haramoto, F. H. 1960. Fruit fly parasites and their activities in Hawaii. Hawaiian Ent. Soc. Proc. 17(3):367-368. Pub. 1961.

Bohm, H. 1960. Die Mittelmeerfruchtfliege in Jahre 1959. Pflanzenarzt 13(1):3-4.

Cardosa Raimundo, A. and Roda Santos, M. L. 1965. Insect control. I. Labeling the fruit-fly (C. capitata) with radioactive phosphorus for the sterile-male method. Garcia de Orta 13(3):351-358. In Ital., Fr. and Engl. Sum., detachable sum. in Por. and Engl.

Chancogne, M., Court, D., Cantuel, J., and Destruel, C. 1960. Tests of compounds against Ceratitis capitata W. in pear and peach orchards. Phytiatrie-Phytopharm. 9(4):227-232. In Fr.

Chiozza, J. P. 1962. The Mediterranean fruit fly. Frutas 3(34/35): 2-3. In Sp.

Cowperthwaite, W. G. 1962. The Medfly strikes the third time. Fla. State Hort. Soc. Proc. 75:19-20. Pub. 1963.

Delanoue, P. 1961. Artificial permanent breeding of Opius concolor Szepl., parasite of Dacus oleae Gmel. on Ceratitis capitata Wied. Inform. Oleicoles Internatl. (n.s.) 15:17-28. In Fr.

Docavo Alberti, I. 1960. La mosca de las frutas (Ceratitis capitata Wiedemann). Soc. Espan. de Hist. Nat. Bol. Secc. Biol. 58(1):105-134. 18 figs.

El-Sawy, S. E., Maher Ali, A., Faris, F. M., and Ezzat, M. A. 1964. Role of soil insecticides in reducing fruit-fly infestation. Soc. Ent. Egypte Bul. 48:159-162. Pub. 1965.

Fandino, D., Ogloblin, A., and Mallo, R. G. 1965. Neuvo cebo alimenticio y atractivo para la "mosca del Mediterraneo". Rev. Invest. Agropecuar. Ser. 5, Pat. Veg. 2(5):33-40. Engl. Sum.
New feed and attractant for the Mediterranean fruit fly. Yeast extracts studied for Ceratitis capitata

Fandino, D. S., Turica, A., and Mallo, R. 1961. Attractives for the "Mediterranean fruit fly." IDIA 161:30-35. In Sp.

FAO Plant Protection Bulletin. 1965. Control of Mediterranean fruit fly in Central America. FAO Plant Protect. Bul. 13(2): 47-48.
Sterilization of flies with gamma rays.

Féron, M. 1960. Bipotentialité de comportement mâle et femelle chez un insecte, Ceratitis capitata Wied. (Dipt. Trypetidae). Acad. des Sci. Compt. Rend. 250(11):2067-2069.

Féron, M. 1962. Reproductive instinct in the Mediterranean fruit fruitfly Ceratitis capitata Wied. (Dip. Trypetidae): sexual behavior--oviposition behavior. Rev. de Path. Veg. et d'Ent. Agr. de France 41(1/2):1-78, 79-129. In Fr.

Féron, M. 1966. Sterilization of the Mediterranean fruit fly, Ceratitis capitata Wied, by irradiation of the pupa with gamma rays. Ann. Epiphyt. 17(2):229-239. In Fr.

Ferrari, R. 1966. Presence and activity of the fruit-fly (Ceratitis capitata Wied.) in the Bologna district. Bol. Oss. Mal. Piante Bologna 1:65-82. In Ital.

Ferro, A. 1962. Ceratitis capitata Wied., fruit fly. Agr. Napoletana 29(10):29-37. In Ital.

Guagliumi, P. and Requena, J. R. 1962. Situacion actual de la "mosca del Mediterráneo," Ceratitis capitata (Wied.) en Venezuela. Jornadas Agron. Trab. 3rd. Cong. (Paper 79). 4 pp., Map.

Hubert, F. P. 1960. A review of treatments of citrus fruits for control of Mediterranean fruit fly. FAO Plant Protect. Bul. 9(3):33-36.

International Conference on Mediterranean Fruit Fly and San Jose Scale. 1963. Ceratitis capitata Wied. Quadraspidiotus perniciosus (Comst.). Eur. and Mediterr. Plant Protect. Organ. 104 pp. Paris.

Jimenez, E. J. and Camplis, J. V. 1965. Importance of the program of prevention and detection of Mediterranean fruit fly (*Ceratitis capitata* Wied.) in Mexico. Fitofilo 18(48):21-27. Map. in Sp.

Jones, H. L. 1960. Operation Medfly. Amer. Fruit Grower 80(2):23, 66, 68.

Kovacevic, Z. 1960. Mittelmeerfruchtfliege - *Ceratitis capitata* Wied., als okologisches Problem. Agron. Glasnik 10(4):161-171. In Serb., Ger. Sum.

Kuitert, L. C. 1962. Mediterranean fruit fly control. In fertile lands of friendship. 312 pp. (Edited by Alleger, D. E.). pp. 283-297.

Lemaistre, J. 1960. Progrès récents de la lutte contre la cératite (*Ceratitis capitata* Wied.) dans les plantations d'agrumes et autres arbres fruitiers (revue bibliographique). Fruits 15(2):73-76.

Lhoste, J. and Roche, A. 1960. Organes odoriférants des mâles de *Ceratitis capitata*. Soc. Ent. de France Bul. 65(7/8):206-210.

Machado Cazorla, E. 1960. Estudio de la mosca de la fruta y métodos para su control en el Valle de Huánuco. Agronomia 27(2):144-152.

Maher Ali, A. 1964. A new era in the control of the Mediterranean fruit-fly. Soc. Ent. Egypte Bul. 48:155-157. Pub. 1965.

Martínez-Beringola, M. L. 1966. The influence of larval density on the duration of development of *C. capitata* II. Roy. Soc. Esp. Hist. Nat. Bul. (Biol.) 64:351-360. In Sp., Engl. Sum.

Martins, E. T. B. 1962. Enemies of cultivated plants: the fruit fly *Ceratitis capitata* Wied. Gaz. Agr. de Angola 6(8):439-440. In Por.

Mayer, K. 1960. Behavior studies of the Mediterranean fruit fly, *Ceratitis capitata* Wied. Internatl. Cong. Ent. Trans. 11th Cong., v.2(sect. 7/14):80-83. In Ger. Pub. 1962.

Mayer, K. 1960. *Ceratitis* in Mitteleuropa. Gesunde Pflanzen 12(8):169-173.

McGovern, T. P. and Coauthors. 1966. Volatility and attractiveness to the Mediterranean fruit fly of trimedlure and its isomers, and a comparison of its volatility with that of seven other insect attractants. J. Econ. Ent. 59(6):1450-1455.

Mellado, L., Caballero, F., Arroyo, M., and Jiménez, A. 1966. Tests on the eradication of *C. capitata* from the Island of Tenerife by the sterile-male technique. Bol. Pat. Veg. Ent. Agr. 29:89-117. In Sp.

Milaire, H. 1960. Evolution et dégâts de la mouche Méditerranéenne des fruits en France en 1959. Phytoma 12(118):21-23.

Milaire, H. 1960. La mouche méditerranéenne des fruits, en 1959, dans la circonscription de Lyon et les nouvelles possibilités de lutte. III. Pomol. Franc. (n.s.) 2(7):17-20.

Mitchell, S., Tanaka, N., and Steiner, L. F. 1965. Methods of mass culturing melon flies and oriental and Mediterranean fruit flies. U.S. Dept. Agr. ARS 33-104. 22 pp.

Moiseeva, Z. 1966. The Mediterranean fruit-fly. Zashch. Rast. 1966. 9:35-36. In Rus.

Monastero, S. and Genduso, P. 1962. Biological control of the olive fly (possibility of rearing and diffusion of *Opius* found in Sicily). Palermo Univ. Ist. di Ent. Agr. pp. 31-51. In Ital., Engl. Sum.
Opius concolor siculus reared on *Ceratitis capitata*

Mourikis, P. A. 1965. Data concerning the development of the immature stages of the Mediterranean fruit fly (*Ceratitis capitata* (Wiedemann)) (Diptera: Trypetidae) on different host-fruits and on artificial media under laboratory conditions. Inst. Phytopathol. Benaki. Ann. (n.s.) 7(2):61-105.
Fruit juices for their nutrition.

Myburgh, A. C. 1961. Studies on toxicants in bait sprays against fruit flies. (Scientific Note) Ent. Soc. South. Africa J. 24(2):345-347.

Myburgh, A. C. 1963. Diurnal rhythms in emergence of mature larvae from fruit and eclosion of adult *Pterandrus rosa* (Ksh.) and *Ceratitis capitata* (Wied.). So. African J. Agr. Sci. 6(1):41-46.

Nucifora, A. 1960. Control experiments against the Mediterranean fruit fly (*Ceratitis capitata* Wied.) carried out in 1956-1958 by S-[(methylcarbamyl) methyl] o.o-dimethyldithiophosphate and S-[(isopropylcarbamyl) methyl] o.o-dimethyldithiophosphate. Ann. della Sper. Agr. 14(3, sup.):CXLVII-CLXXII. In Ital., Engl. Sum.

Nucifora, A. 1960. Positive effects of covering "Elberta" peaches with paper bags for protection against infestation by fruit fly (*Ceratitis capitata* Wied.). Tec. Agr. 12(4):448-453. In Ital.

Nucifora, A. 1960. Residual action of "Rogor" in control of fruit fly in the adult stage. Tec. Agr. 12(2):171-177. In Ital., Engl. Sum.

Nucifora, A. and Barbagallo, S. 1966. The use of Rogor in the protection of late-ripening peaches from *C. capitata*. Tec. Agr. (Catania) 18(1):1-15. In Ital., Engl. Sum.

Organismo Internacional Regional De Sanidad Agropecuaria. 1961. Five years of work of the OIRSA. Organismo Internacional Regional De Sanidad Agropecuaria. 32 pp. In Sp. Managua, Nicaragua

Orihuela, A. 1960. La mosca mediterranea de la fruta. Agr. Venezol. 24(220):13-16.

Orlando, A., Sampaio, A. S., Rigitano, O., and Bitran, E. A. 1965. Studies on the influence of stickers in Fenthion powders for the control of "fruit flies" of peach. Biologico 31(7):125-132. In Por., Engl. Sum.

Paglietta, R. 1961. "Ceratitis capitata" an undesirable guest of our fruit trees. Colt e Gior. Vinic. Ital. 107(9):284-286. In Ital.

Peleg, B. A. and Rhode, R. H. 1967. New methods in mass rearing of the Mediterranean fruit fly in Costa Rica. J. Econ. Ent. 60(5):1460-1461.

Quintanilla, R. H. 1965. Behavior of various substances as attractants of the "Mediterranean fruit fly" (Ceratitis capitata). Buenos Aires. Univ. Fac. Agron. Vet. Rev. 16(1): 3-16. In Sp., Engl. Sum. Pub. 1965.

Ruffinelli, A. 1963. Las moscas de las frutas (Ceratitis capitata y Anastrepha fraterculus). Uruguay Dir. de Agron. Pub. 109. 6 pp.

Ruffinelli, A., Orlando, A., and Biggi, E. 1960. Further experiments with attractants for fruit-flies-Ceratitis capitata (Wied.) and Anastrepha mombinpraeoptans Sein. Sao Paulo Inst. Biol. Arq. 27:1-10. In Por., Engl. Sum.

Sanders, W. 1962. The behavior of the Mediterranean fruit fly Ceratitis capitata Wied. during oviposition. Z. f. Tierpsychol. 19(1):1-28. In Ger., Engl. Sum.

Shedley, D. 1960. Insect pests. Fruit fly control with Rogor 40 and Lebaycid (a progress report). West. Austral. Dept. Agr. J. Ser. 4, 1(11):973-974.

Shedley, D. G. 1961. New recommendations for fruit fly control. West. Austral. Dept. Agr. J. Ser. 4, 2(10):793-795.

Simunić, I. 1960. Comparative investigations of attractive means (baits) for Mediterranean fruit fly (Ceratitis capitata Wied.). Zastita Bilja 62:49-59. In Serb., Engl. Sum.

Steiner, L. F., Rohwer, G. G., Ayers, E. L., and Christenson, L. D. 1961. The role of attractants in the recent Mediterranean fruit fly eradication program in Florida. J. Econ. Ent. 54(1):30-35.

Stephenson, B. C. and McClung, B. B. 1966. Mediterranean fruit fly eradication in the Lower Rio Grande Valley. Ent. Soc. Amer. Bul. 12(4):374.

U.S. Agricultural Research Service, Plant Pest Control Division. 1966. Mediterranean fruit fly; Formosan subterranean termite. FAO Plant Protect. Bul. 14(4):90
Outbreaks in Texas and Louisiana, respectively.

Vergani, A. R. and Valsangiacomo, F. J. 1961. Experiment with attractants for the Mediterranean fruit fly. IDIA Sup. 6:105-109. In Sp.

Yaman, I. K. A. 1966. Annual population fluctuations of Ceratitis capitata Wied. in Jordan. Anz. Schadlingskunde 39(9):136-140. Map. In Ger.

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